

Production Technology of Dhaincha

Name: Dhaincha.

Family: Leguminosae.

Scientific name: *Sesbania aculeata* .

Dhaincha is an annual shrub which can grow to seven metres in height but usually only reaches one to two metres. It sends out fibrous, pithy stems with long leaves and bears purple-spotted yellow flowers. It produces pods which contain light brown beans. The plant has a great number of uses, including as green manure, rice straw, wood and fodder.

Climate

Grown in all seasons when sufficient moisture is available.

Soil

Dhaincha can be grown on any type of soils, provided there is sufficient rainfall or alternative irrigation facility. Dhaincha can tolerate alkalinity to a level of pH 9.5.

Land Preparation

The land is given one or two ploughings for its preparation. In case if green manuring is followed by application of gypsum in alkaline soils, leveling of the field is necessary.

Sowing

Before sowing, seeds of dhaincha should be soaked overnight in water.

Time: ♦ Grown in all seasons when sufficient moisture is available.

♦ Sowing during March – April is best for seed production.

Method: Broadcasting, line sowing.

Spacing

For seed purpose adopt 45 X 20 cm.

Seed Rate

- Green manure: 50 kg/ha.
- Seed purpose: 20 kg/ha.

Fertilizer Application

when the plant is young, root nodules are not so active. Therefore, application of 10-15 kg of nitrogen per hectare helps the crop to grow faster. Dhaincha often does not need any additional dose of

potassic fertilizer as its extensively grown root system absorbs enough potash from the soil to meet its requirement.

Irrigation

The crop does not need to have standing water, but irrigation water should be applied as necessary (e.g. if soil is cracking and sesbania leaves are being shed).

Pests and diseases

The crop seems to be relatively pest free.

Harvesting

Incorporate the green matter within 45-60 DAS & collect seeds from 100 DAS.

Yield

- Green biomass – 25 t/ha.
- Seed – 500-600 kg/ha.

Production Technology of Sunnhemp

Botanical name: *Crotalaria juncea* L .

Family: Leguminosae.

Sunn hemp is a fast-growing, nitrogen-fixing soil builder that Midwest growers are just starting to appreciate as a cover crop. Like other cover crops, sunn hemp suppresses weeds, reduces erosion, and improves soil tilth. It's this legume's ability to thrive in poor soil conditions and withstand drought, heat and wind while producing tons of biomass that is getting growers' attention.

Climate

Grown in all seasons.

Soil

Sunn hemp grows best on well-drained soils with a pH from 5 to 7.5. It will grow on sandy or clay soils, just not too hard packed clay. The soil does need to be fairly well drained. It will need zero Nitrogen, but will grow better if Phosphorus and Potash are already in or added to the soil.

Sowing

Time: Sowing during March – April is best for seeds production.

Method: Broadcasted or line sowing.

Spacing

- 30 X 10 cm.
- For seed purpose adopt 45 X 20 cm.

Seed rate

- 25-35 kg/ha for green manure.
- Seed purpose: 20 kg/ha.

Seed treatment

Mix seeds with specific rhizobium strain @ 5 pkts /ha.

Irrigation

Once in 30 days.

Harvest

- Incorporate the green mater within 45-60 DAS.
- For seed purpose: Collect the seeds from 150 DAS.

Yield

- Green biomass – 13-15 t/ha.
- Seed – 400 kg/ha.

Production Technology of Cowpea

Botanical Name: *Vigna sinensis* Savi.

Family: Leguminosae.

Cowpea is a Kharif legume and is grown for green pod, dry seed, fodder and green manure.

Varieties

- Deshi: BARI borboti 1.
- Indian variety: Pusa phalguni (summer crop), Pusa Barsati (rainy season crop), Pusa Dofasli is best for summer as well as rainy season.

Climate

Cowpea thrives very well in warm seasons not in cold and winter seasons. Areas, where rainfall is more than average is not suitable for Cowpea Farming. Cowpea crop requires and do well in moist weather.

Soil

Cowpea can be cultivated in wide range of soils. They grow very well in sandy and sandy loam soils.

Land preparation

The land should be prepared by giving 4-5 ploughing before planting the cowpea seeds.

Time of Sowing

The time of sowing varies according to type of crop-

- i) Kharif crop: May – June.
- ii) Rabi crop: October- November.
- iii) Spring crop: February – March.

Seed Rate

The rate is 15 to 20 kg/ha.

Sowing method

The cowpea seeds are sown by dibbling method.

Spacing

In layout flat bed and spacing 45 cm X 35 cm or 70 cm X 50 cm is practiced in cowpea farming.

Fertilizer Application

- Well decomposed compost (Field Yard Manure): 5 tonnes/ acre.
- Urea: 45 kg/ acre.
- TSP: 120 kg/ acre.

½ dose Urea, full dose TSP should be applied at the sowing and remaining half nitrogen applied 30 days after sowing.

Weed Control

Weeding is not needed for this cowpea crop. It covers the land very soon and kills the weeds by smothering. Initial stages of growth, one weeding more than enough to control the weed in cowpea

cultivation.

Irrigation

No irrigation is given in rainy season crop. But if grown earlier, the crop is irrigated whenever it is required. About 3-4 irrigation may be given before rainfall.

Diseases, Insect and their Control

- Root rot, Fusarium wilt, mosaic and damping off is major disease of cowpea.
- Root-knot nematode, Green stink bugs, Aphids, Cowpea curculio are important insect pest of cowpea.

Control

- Applying cowpea-labeled fungicides in the furrow.
- Avoiding throwing soil against plant stems during cultivation.
- A four or five year rotation with other crops.
- Seeding into warm, well-prepared soils.
- Planting certified seed of resistant varieties.
- Controlling weeds.
- The removal of virus-affected plants.

Harvesting

The cowpea crop will be ready for harvesting in 3 to 4 months for short duration crop and 4 months to 5 months for long duration crop. Tender pods should be harvested frequently before they become fibrous. The cowpea crop can be used as green fodder for animal or can make organic manure, when they are bearing flowers.

Yield

Cowpea yield about 50 to 80 quintal green pods/ ha.

Production Technology of Clover (Egyptian)

Local Name : Berseem.

Family : Leguminosae.

Botanical Name : *Trifolium alexandrium*.

Origin : Egypt.

Economic Uses of Berseem

1. Berseem is leguminous fodder crop and provide proteins and other minerals to animals.
2. It can be fed as green, dry and in silage form.
3. It is very palatable and mostly fed as green fodder to milch animals.
4. It adds atomospheric 'N' is soil which get available to succeeding crop.
5. It improves the soil structure.

Climate

It requires cool temperatures specially during germination and early growth period. It should not be grown in areas where winter temperatures are commonly 6°C or lower. The optimal temperature for the growth of Egyptian clover ranges between 18-25⁰ C.

Soil

It will grow on a wide range of soils, from loam to clay, provided they are not waterlogged, but prefers medium to heavy loams. It can be growth in alkaline soil but not grown in acidic and water logging soil. Egyptian clover tolerates soil pH ranging from 4.9-7.8, with a mean of 6.8, and has been noted for tolerating basic to acidic soils.

Variety

Hellaly, Sakh-4, Giza-1, Serw-1, Gemiza-1, Meskawi, Pusa giant, Fahl etc.

Land Preparation

Land is deep ploughed and three harrowing are given across the slope. Flat beds are prepared and sowing is done in it.

Seed rate

Seed rate is 10 to 15 kg/ha.

Sowing method

- Berseem is generally sown by broadcasting in beds and mixing seeds with soil.
- As be seem seed is small and hence before sowing it is mixed with fine sand in 1:1 proportion for even sowing.

Sowing time

It is sown from 15 October to 15 November.

Fertilizer Application

20 – 25 tons FYM and 50 kg P₂O₅/ ha is added before last harrowing.

Weeding

2 hand weeding are given at 30 days interval.

Irrigation

After sowing first two light irrigations are given so that seed does not collect at one side of bed and subsequent irrigations are given at 15 to 20 days in winter and 10 to 12 days in summer.

Harvesting

First cutting is available 50 to 60 days after sowing. Other cuttings are obtained at about 40 days interval before flowering. In all 4 to 5 cuttings are obtained upto mid of May.

Seed Production

Egyptian clover seed is small and egg-shaped, reddish brown, and about 2 millimeters long (2 mm). On average, there are about 2,00,000 seeds per pound or about 440 seeds/gram. Most seeds are yellow; about 10 to 15% of the seeds are purple.

Threshing method

Egyptian clover pods can be threshed by hand or machine. Manual threshing is the method most often used by small-scale farmers; large-scale farmers tend to practice engine-powered threshing.

Yield

Average Yield of Berseem is about 20 to 25 tons green fodder/ha.